# REPORT DOCUMENTATION PAGE

*Form Approved*
*OMB No. 0704-0188*



| 1. REPORT DATE *(DD-MM-YYYY)* | 2. REPORT TYPE | 3. DATES COVERED *(From - To)* |
|---|---|---|
| 17-05-2004 | FINAL | |

**4. TITLE AND SUBTITLE**

Should Seabasing's numerous conceptual limitations

prevent future development and utilization.

**5a. CONTRACT NUMBER**

**5b. GRANT NUMBER**

**5c. PROGRAM ELEMENT NUMBER**

**6. AUTHOR(S)**

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Paper Advisor (if Any): Professor Romanski

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**

Joint Military Operations Department
Naval War College
686 Cushing Road
Newport, RI 02841-1207

**8. PERFORMING ORGANIZATION REPORT NUMBER**

**9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**

**10. SPONSOR/MONITOR'S ACRONYM(S)**

**11. SPONSOR/MONITOR'S REPORT NUMBER(S)**

**12. DISTRIBUTION / AVAILABILITY STATEMENT**

Distribution Statement A: Approved for public release; Distribution is unlimited.

**13. SUPPLEMENTARY NOTES** A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

**14. ABSTRACT**

The Department of Defense is developing the Seabasing Concept of Operations as a method of basing and sustaining Expeditionary Forces in the future. Seabasing is expected to minimize U.S. reliance on intermediate staging points and host nation support. The seabasing concept has numerous inherent limitations that will significantly limit the concept's utility. Research conducted to validate the seabasing concept does not adequately address these inherent limitations: cost, throughput, range, speed, maneuverability and defense. After considering these limitations holistically, military policy makers and future commanders should reevaluate the concept's utility and the conditions under which it can effectively be employed.

**15. SUBJECT TERMS**

Seabase, Sea Based Logistics, Operational Maneuver From the Sea.

| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES | 19a. NAME OF RESPONSIBLE PERSON |
|---|---|---|---|---|---|
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | Chairman, JMO Dept |
| UNCLASSIFIED | UNCLASSIFIED | UNCLASSIFIED | | 22 | 19b. TELEPHONE NUMBER *(include area code)* 401-841-3556 |

**Standard Form 298 (Rev. 8-98)**

**NAVAL WAR COLLEGE**
**Newport, RI**

# SHOULD SEABASING'S NUMEROUS CONCEPTUAL LIMITATIONS PREVENT FUTURE DEVELOPMENT AND UTILIZATION

**By**

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**A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature:** _____

**17 May 2004**

## Abstract

The Department of Defense is developing the Seabasing Concept of Operations as a method of basing and sustaining Expeditionary Forces in the future. Seabasing is expected to minimize U.S. reliance on intermediate staging points and host nation support. The seabasing concept has numerous inherent limitations that will significantly limit the concept's utility. Research conducted to validate the seabasing concept does not adequately address the inherent limitations: cost, throughput, range, speed, maneuverability and defense. After considering these limitations holistically, military policy makers and future commanders should reevaluate the concept's utility and the conditions under which it can effectively be employed.

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## INTRODUCTION

The global political and economic environment in which nations operate is not static. Over time, political relationships shift as sovereign nations act in manners consistent with their interests. Traditional alliances are no longer wholly reliable for considerations such as overflight, port access, and host nation support to enable U.S. military operations around the world. Additionally, advances in military technology ensure that traditionally less prosperous nations now represent a realistic military threat. One result of this continually evolving global environment is the necessity for the U.S. military to continually reevaluate existing military strategies and capabilities against those of potential enemies. Strategies that proved successful in the past will not necessarily be successful in the future. This was a difficult lesson for Great Britain and France at the outset of World War II when the Allies were confronted by the Axis Powers. These European allies had essentially prepared to fight the First World War a second time, and were ill prepared for new Axis capabilities.

Within this context, the U.S. military routinely assesses current and future capabilities. The results are published in futuristic documents such as Joint Vision 2010,[1] Joint Vision 2020,[2] Forward from the Sea,[3] and Operational Maneuver from the Sea.[4] Embedded within these documents is an emerging strategy for future seabasing of military forces and sustainment of those forces (Sea Based Logistics (SBL)). The concepts of Seabasing and Sea Based Logistics are infants and therefore subject to interpretation of what their final form may be.

In this paper, I identify limitations associated with the Seabasing (SB) and Sea Based Logistics (SBL) concepts. I consider these limitations significant that they may prevent successful development and utilization of the concepts. Additionally, I argue that these

conceptual limitations, considered holistically, should cause military policy makers and future commanders to reconsider seabasing's utility. Finally, I provide recommendations for appropriate employment of future seabases and reevaluation of concept validation studies conducted to date based upon inconsistencies between envisioned capabilities.

To support my thesis, this paper provides a brief history of the seabasing concept, discussion of anticipated advantages, and analysis of limitations. It concludes with a summary of seabasing concept utility.

## ORIGIN OF THE SEABASING CONCEPT

In the broadest terms, seabasing constitutes an afloat capability of waterborne platforms whose purpose is to sustain forces ashore in place of the traditional "beach head" footprint.[5] Seabasing comprises a number of functions or activities, one of which is seabased logistics (SBL).[6]

The Seabasing concept derives from traditional amphibious warfare, which entailed transporting a fighting force and tactically inserting it into the fight, potentially by means of an opposed beach landing. Once the fighting force was ashore with equipment off loaded, command functions were transferred to the combat commander ashore. Depending upon the size and duration of the operation, combat forces would reconstitute and embark after the military objective had been achieved.

In an effort to advance the capabilities of amphibious warfare, DOD and specifically the Army developed Joint Logistics Over The Shore (JLOTS). JLOTS was the development of floating piers, barges, and litherage in an effort to off-load more war fighting equipment and materials faster and do so in locations without established port facilities. [7]

Utilizing traditional amphibious warfare tactics and improved force sustainment methods (i.e. JLOTS) as conceptual stepping stones, the Marine Corps took the next step forward with their vision of Operational Maneuver From The Sea (OMFTS). OMFTS involves utilizing the sea as operational maneuver space to achieve tactical surprise as to timing and location of the force insertion point.[8] When OMFTS is combined with seabasing, the intended employment is to first maneuver forces at sea. Second, tactically insert the fighting force at the military objective utilizing organic airlift capabilities. Third, maintain command and control functions at the seabase minimizing the footprint ashore. Fourth, sustain the fighting force from the seabase utilizing organic airlift capability. Finally, reconstitute the force on the seabase upon successful completion of the military objectives. In this scenario, seabasing offers the future commander improved flexibility and capability over traditional amphibious tactics or JLOTS.

## EXPECTED ADVANTAGES OF SEABASING

OMFTS and Seabasing are complementary concepts. They are frequently discussed together in literature and have been referred to as Expeditionary Maneuver Warfare.[9] If implemented together, the joint force commander anticipates specific advantages to include:

- The ability to use the sea as operational maneuver space to achieve tactical surprise regarding force insertion location and timing.[10]
- The ability to insert the embarked fighting forces directly to the in-land military objective utilizing organic air lift capabilities to eliminate the necessity of establishing a beach head.[11]

- Eliminating a beach head will reduce sustainment requirements by 80%. Not having to man, defend and sustain a beach head will allow the commander to focus on the military objective and not on building logistics infrastructure ashore.[12]
- Eliminating the beach head will eliminate the operational pause common after establishing a beach head while the necessary materials are brought ashore to support the breakout to the objective area.[13]
- Eliminating the beach head will reduce the potential that the strike force will be opposed therefore reducing potential casualties and loss of force effectiveness enroute to the military objective.[14]
- Eliminating the beach head also eliminates the threat of enemy action against vulnerable land based supply chain. Instead, logistics support may be delivered by air from the seabase directly to the fighting force.[15]
- Eliminating the beach head will eliminate the need for port facilities.[16]
- Sustaining the fighting force ashore with direct delivery from the seabase minimizes or eliminates political complications when a host nation refuses to permit U.S. force constitution within its borders.[17]
- Command and control functions and fire control for the inserted fighting force may remain on the seabase at the discretion of the joint force commander further reducing the required footprint ashore.[18]

The anticipated seabasing advantages are significant both tactically and operationally to future warfare commanders. If achievable, these advantages could dramatically increase the chances of success compared to historical amphibious warfare tactics. This may be

illustrated by reviewing briefly the challenges faced by Great Britain when it employed traditional amphibious warfare tactics during the 1982 Falkland Islands war.

In this conflict, Great Britain faced an entrenched occupation force of the Argentine Army on a very isolated island. With naval surface and air support, Great Britain utilized an amphibious landing to place forces ashore and to defeat the Argentine defenders. The challenges of this amphibious operation included:

- The area of operations was geographically remote with no local host nation support for port facilities, material off-load/staging or resupply. This factor limited the size of force and length of time the force could sustain combat operations.
- The British were numerically inferior in the attacking force. The British had to land troops unopposed at a remote site, necessitating an operational pause while getting material to the beach head.
- The British had inadequate organic air lift and thus were unable to move materials ashore and troops to the engagement area quickly.
- The beach head was vulnerable to air attack.

If seabasing works as promised, many of the classic amphibious warfare challenges faced by the British in 1982 could be eliminated in the future. It is therefore logical for the DOD to pursue seabasing. Unfortunately, in much of the available seabasing literature, only the advantages are addressed in any detail. Numerous conceptual limitations are not adequately addressed. I believe it is absolutely vital to identify and discuss these limitations early in

conceptual development in order to allow for appropriate resource decisions to be made and to identify the real limits of seabasing utility.

## CONCEPTUAL LIMITATIONS

The most significant seabasing limitations include cost, limited throughput, limited range, limited maneuver, limited speed, and defendability. Each limitation will be discussed utilizing data contained in previously conducted studies. Before discussing specific limitations in detail, I will address the problematic issue of defining an emerging concept. In order to evaluate seabasing and sea based logistics concepts, we must first attempt to clearly define the components of a seabase. Defining components of a seabase is not easy because the seabase doesn't currently exist as an actual capability. Most references discussing seabasing/SBL define them in terms of desired capability vice actual seabase content. The lack of specific content (i.e. ship types envisioned) greatly frustrates efforts to estimate the cost of acquisition and implementation. As a future capability it appears to be largely open to interpretation as illustrated by the following examples.

- The Department of the Navy in Naval Doctrine Publication 4, Naval Logistics defines SBL not as a combination of ship types, but as five primary tenants characterizing SBL. Summarized, they are Primacy of the Seabase. Reduced Demand, In-stride Containment, Adaptive Response and Joint Operations, and Force Closure and Reconstitution at sea.[19]
- In the Navy's Amphibious Warfare Plan, seabasing is described in terms of capability vice terms of content. Required capabilities include selective off-load capability, in-stride supply and maintenance support, recover and reconstitute

forces and equipment, and provide at sea medical support all from over the horizon. Additional capabilities may include providing the Maritime Propositioning Force a location for at sea arrival and assembly of units, indefinite seabased sustainment, and sea reconstitution and redeployment of the force. In this publication some mention is made of possible platforms from which this myriad of capabilities might take place. They include large strategic sealift ships or possibly a Mobile Offshore Base (MOB) capable of landing large transport air craft.[20]

- A recent draft seabasing CONOPS being reviewed at the Pentagon also focused on capabilities. This included the ability to support 20,000 troops from a range of 220 miles and 40,000 troops from 120 miles. Seabasing would also provide a secure location for Joint Force Commander and staff. In this case, actual envisioned content included long range and heavy lift high-speed vessels and air cushioned landing craft.[21]
- A recent article published jointly by Vice Adm. Charles W. Moore Jr. and Lt. Gen. Edward Hanlon Jr., provided their interpretation of what platforms might make up the future Seabase. They included "Carrier Strike Groups, Expeditionary Strike Groups, Combat Logistics Force ships, Maritime Prepositioning Force platforms, and in the years ahead, high-speed support vessels."[22]

Occasionally the proposed capabilities such as pre-packaged supplies floating overhead and delivered on demand by unmanned vehicles appear to be so unrealistic to the point of discrediting the whole concept outright.[23]

As noted, seabasing is widely interpreted. It is often defined in terms of desired capability and less in terms of actual content. In cases where predictions are offered as to future content of the seabase, the list of ships appears to include every ship type present afloat. This is not particularly helpful in estimating cost or anticipating operational practices.

## COST LIMITATIONS

The first seabasing concept limitation to address is cost. Although cost is not the immediate concern of the Joint Commander, if the concept is determined to be too expensive to develop, the consequences are likely to be a reduction in scope and ultimately capability. Estimating the cost of a future seabase is difficult. In order for any estimate to be valid several conditions must be met. First, the desired capabilities must be identified. Second, means of delivering those capabilities must be identified (platform types). Finally, a cost estimate can be generated to procure the ships, air delivery vehicles, aircraft, etc. The first condition, identifying the desired capability has been met. Although widely interpreted, the Defense Science Board Task Force on Seabasing published a comprehensive report in which the core capabilities of seabasing are defined.[24] The second condition, identifying the means or future ship types necessary to conduct seabasing, is partially complete. On this point the Defense Science Board was less specific, acknowledging that future capabilities will require a combination of future ship types to include Maritime Prepositioning Ships (Future), Mobile Off-shore Base (MOB), and Semi submersible structures.[25] Regarding the third condition, estimating the cost of these future platforms, there has been an effort made by the Center for Naval Analysis. In their Final Summary Report they attempted to account for the fact that some combinations of future ship types would be required by establishing cost estimates for

seven different types of platforms based on desired level of capability. On the low end of the capabilities scale was simply replacing old ships with new ships of the same capability. Several mid-capability options were addressed based on incremental increases in capabilities, specifically in the types of functions and number of personnel that could be supported. The most capable option considered consisted of a Mobile Offshore Base (MOB) able to receive heavy strategic lift aircraft, to berth 17,000 Marines of a MAGTF, and deliver/sustain a Marine fighting force of 6,800.[26]

Acquisition cost estimates for one squadron of ships or an equivalent five piece MOB ranged from $2.3 Billion for the least capable to $12.6 Billion for the most capable MOB.[27] The same report considered six of the seven capability options able to provide significant improvements in sea based delivery and sustainment over current capabilities.

We can identify several concept limitations by reviewing the capability assumptions and concept of operations used in this analysis. First, only the most capable MOB option will have the ability to receive heavy strategic lift air craft while the less capable six options do not. Second and most significant, the less capable six options each require some combination of Intermediate Staging and Embarkation Point, Air Landing Base, or host nation support ashore. This requirement for host nation support facilities directly contradicts the core premise that a seabase should be able to sustain combat forces without host nation or intermediate support facilities. To summarize cost considerations, the only platform potentially able to conduct all stated requirements of seabasing is the MOB. The MOB is the most expensive option at $12B acquisition costs and $17B life cycle costs.[28] The MOB is slow, so multiple MOBs would have to be built and prepositioned in anticipation of future use. Additionally, it is not clear that procuring multiple MOBs for seabasing and

prepositioning will entirely eliminate the need for the existing prepositioning ships. Thus, the cost of multiple MOBs will likely be in addition to the cost of maintaining/modernizing the existing MPF fleet as opposed to replacing it.

## THROUGHPUT/RANGE LIMITATIONS

The second seabasing concept limitation is throughput and range. Throughput is the number of troops that can be delivered to the Area of Operations (AO) and sustained at the military objective. Sustainment includes the ability to receive/offload cargo ships at sea and deliver materials ashore via air lift. The two relevant ranges are ship-to shore and ship-to-objective.

Numerous studies have been conducted on throughput. Most have used similar standards which make for simple comparison of their results. When discussing delivery to the AO (off shore), we will assume a brigade-sized Marine Expeditionary Force (forward) (MEF (FWD)) including a ground combat element (GCE), aviation combat element(ACE), command element (CE), and combat service support element (CSSE). This force forms a Marine Air Ground Task force (MAGTF) and consists of 17,000 marines.[29] When considering movement to the objective and sustainment ashore we will assume 6,800 combat troops supported at the objective with the remainder of the MAGTF on the seabase.[30]

The Center for Naval Analysis study addressed the ship-to-shore movement of 6,800 combat troops. They considered future organic lift capabilities to include future deployment of the V-22 and use of the CH-53 aircraft along with LCACs, AAAVs and litherage.[31] In the first scenario they calculated the time required to move the combat force starting from 25 nm at sea then, after establishing a beach head, moving to 4 nm off shore to off load materials

utilizing barges. In this scenario the offload was completed in two days. In the second scenario the entire offload was done from 25 nm off shore. In the second case offload time doubled to 4 days due to dependence upon air lift and LCACs without barges.

In terms of sustaining the forces ashore, the Center for Naval Analysis study considered delivering 30,000 pounds of food, 40,000 pounds of water, 60,000 pounds of fuel and 70,000 pounds of ammunition to the military objective at a distance of 85 miles. The analysis indicated organic air lift could deliver the required amount of sustainment. The study did not consider aircraft attrition.

A second independent study considered aircraft attrition and various ship-to-objective ranges when calculating troop movement and sustainment. Also considered was the inverse relationship between the distance from ship-to-objective and the weight of the load to be transported. This study concluded that troop sustainment via use of organic air lift from the seabase was feasible for short and medium distances, but was not feasible for long distances (greater than 100 miles).[32] Similar results were achieved in a study conducted by the Committee on Naval Expeditionary Logistics. They also determined that seabase air lift would not support long distance sustainment (defined as 250 miles). [33] Also relevant to the topic of sustainment was the outcome of DOD's JLOTS III test of 1994. Results of that study indicated that predicted offload times from container ships were not accurate and should be increased by 40% from previously published values.[34]

The relatively large pool of analysis allows us to identify several limitations based on throughput and range. First the seabase organic air assets will not be able to deliver and sustain a combat force at the objective in scenarios with ship-to-objective range greater than 100 miles. Seabase maneuver and aircraft attrition will also impact the ability to sustain in-

land forces at shorter ranges. Attempts to sustain larger forces in-land will require operating the seabase closer to shore to reduce range thus limiting maneuverability. Analysis of scenarios utilizing beach heads and use of LCACs to supplement air sustainment should be discounted as they are counter to the seabasing philosophy of not desiring to establish, support, and defend a beach head.

## MANEUVER LIMITATION

The third seabasing concept limitation to consider is maneuver. Maneuver should be addressed from both the seabase's maneuverability in relationship to the shore and its maneuverability while conducting sustainment operations.

Operational Maneuver From The Sea (OMFTS) calls for utilizing the ocean as an operational maneuver space. The objective is to achieve tactical surprise at the objective or insertion point.[35] In concept, the seabase could approach from any direction and close to within 4 – 100 miles from the beach before inserting troops to the objective. Maneuverability and tactical surprise depends greatly on the capacity of the enemy to gather intelligence at sea, geographic constraints and the size of the group of ships making up the seabase. Similarly, weather and sea state will affect maneuverability and ability to maintain sustainment operations.

The ability to achieve tactical surprise as a result of Operational Maneuver is conceptually flawed. It is based on several questionable assumptions. The first assumption is that the U.S. will always maintain air superiority over the area and can completely deny the enemy access to aircraft or satellite gathered intelligence. It assumes that the enemy will not have means of utilizing naval or commercial shipping to monitor coastal areas. It assumes

that a seabase comprising a Carrier Battle Group, Expeditionary Strike Group, Cargo Ships, MLF ships and possibly a 5,000 foot MOB will have maneuver space unencumbered by straights, coastal islands, etc. We should assume that in the next 10 – 40 years even our most unsophisticated enemy will have access to CNN, unmanned air reconnaissance, and satellite intelligence gathering off their coast.

Regarding maneuverability during sustainment operations, once the combat force is ashore the seabase will not be able to stop or delay sustainment operations regardless of naval threat, air threat, weather or necessity to maneuver. Without large stores stockpiled at a beach head to sustain combat operations, the combat commander could find his ability to sustain ground forces ashore dependant upon weather conditions at the seabase 100 miles away from the objective. Having the seabase as a single pipe for sustainment would be a significant risk.

## SPEED LIMITATIONS

Referring again to the Center for Naval Amphibious study, most of the options considered involved new ship classes with the ability to transit at 24 knots in order to meet future deployment time requirements.[36] The most capable option, the MOB will only be able to make 10 knots. Due to the slow speed capability, MOBs will have to be prepositioned in order to get them where they are needed quickly. Commanders may have difficult time achieving tactical surprise while moving a 5,000 foot barge at 10 knots.

## DEFENSE LIMITATIONS

Defense of the seabase has been marginalized by the Defense Science Board Task Force on Sea Basing. They acknowledge threats from mines, sea skimming missiles, submarines and small boats.[37] Regarding mines they imply that because few nations currently have effective deep water mining capability that the threat is negated by operating in water greater than 200 meters.[38] It is not practical to assume that in the next 10 – 40 years while we spend tens of billions of dollars on seabasing that even our least prosperous potential enemies will not spend millions on an effective mining capability. Regarding sea skimming missiles, the board acknowledges their danger and can only recommend moving the seabase beyond their range thus, increasing range-to-objective and complicating force delivery and sustainment missions. We should consider sea skimming missiles a significant threat that is likely to be proliferated in the future. A historical example of their use in the hands of an unsophisticated adversary was the Falklands war. Argentina managed to effectively utilize sea skimming missiles from aircraft and was also able to engineer a rudimentary land launch system. They were able to do so with limited technology available over twenty years ago. Regarding submarine threat, the Board discounts the ability of future enemies to effectively utilize modern diesel submarines in coastal ocean areas. They recommend destroying enemy submarines in port to eliminate the threat. This seems to be a gross underestimate of the potential effectiveness of modern diesel submarines. Finally, the high-speed, small boat threat is discounted completely.

In as much as the supported ground offensive ashore depends on sustainment from a seabase, we must assume that any adversary will consider the sea base our center of gravity or at least a high value target. As such we can expect a determined attack from our

adversary. We should consider how many aircraft, ships and submarines will have to be assigned to protect such a high value target.

## CONCLUSIONS AND RECOMMENDATIONS

Seabasing and Sea Based Logistics have numerous conceptual limitations. Combat force sustainment can not be easily conducted at sea. Requirements for large lay down areas, selective off-load technology and massive organic air lift capability will make seabasing expensive and impractical. If established, a seabase will have limited throughput capacity therefore limiting its utilization to Special Operations Forces support or to small regional conflicts utilizing no more than 6,800 troops ashore. Supporting major combat operations the size of Iraqi Freedom as currently envisioned would be out of the question. The ability to sustain combat troops from a seabase is severely constrained by ship-to-objective range. To move more material ashore faster, commanders will have to establish a logistics beach head ashore or close the distance to the shore thus increasing missile, submarine and mine threat. By virtue of being a high value target we can assume a seabase will be subject to repeated attack by a determined enemy. Considering the size of the seabase, the speed of transit and the ship-to-objective range, these factors greatly constrain the ability to utilize the ocean as an Operational Maneuver Space or a defensive buffer.

Policy makers and Joint Force commanders should consider the practical limitations associated with seabasing when considering future concept development, funding, and operational utilization. While seabasing may offer the combat commander significant tactical and operational benefits in support of small conflicts, seabasing will never be able to support larger operations as currently envisioned.

I recommend reevaluating the core capability requirements of the future seabase and assumptions under which the concept has been validated to date. Inconsistencies between desired capabilities may delay further concept development. Specific capabilities to reevaluate include:

- The requirement that the seabase be able to utilize heavy lift aircraft. That requirement automatically implies the development of MOBs. Aside from being the most expensive option, MOBs are large and slow making them difficult to maneuver and defend.
- The requirement for the seabase to sustain forces ashore without utilizing intermediate staging points or host nation support. In fact most of the current seabasing plans integrate either beach heads or intermediate staging points into the plan either initially or as a planned transition (counter to the basic tenant).
- The assumption that we can avoid establishing a beach head for anything but extremely limited scale operations. The seabase's organic air lift will not be able to sustain large forces (grater than 7,000) ashore at ranges exceeding 100 miles. Given any attrition, even shorter range sustainment is questionable. Furthermore utilizing the LCACs will still require material off-load to the beach (i.e. defend and support a beach head.)
- The assumption that proliferation of cruise missiles will make establishing a beach head susceptible to attack but the proliferation of anti-ship missiles will not make a seabase equally susceptible to attack.

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